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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

MONBLEAU, DAVIENNE N

ART UNIT PAPER NUMBER

2828

DATE MAILED: 01/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/985,707

Applicant(s)

OHMI ET AL.

Examiner

Davienne Monbleau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41,42 and 45-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41,42 and 45-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.



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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/425,015.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The office action dated 11/19/02 has been withdrawn because Claim 48 was not addressed. A subsequent action follows, which addresses Claims 41, 42 and 45-48.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 45-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent Claims 45 and 47 are improper because they are relying on structural elements to further define a method. The structure of the exposing apparatus is not germane to the method of producing a device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krasnov (U.S. Patent No. 6,198,762) in view of Hagiwara (U.S. Patent No. 5,381,210) and Choo et al. (U.S. Patent No. 5,781,579). Krasnov discloses in Figure 1B a laser oscillating apparatus comprising a

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gas supply structure of a convergent-divergent nozzle type, wherein said gas supply structure comprises a fluid inlet (3a and 1a), a throat portion (1B) for controlling said compressible fluid to a speed less than a sound speed and a fluid outlet (3B and 1c). Krasnov does not teach an exposure apparatus. Hagiwara teaches in Figure 2 an exposure apparatus comprising laser exposure/illuminating light (IL), a first optical system (5) for radiating the illuminating light onto a reticle (2), and a second optical system (3) for radiating the illuminating light onto a surface to be irradiated (4). It would have been obvious to one of ordinary skill in the art to use the laser as a light source for the exposure apparatus taught by Hagiwara, since any suitable laser source may be used. Furthermore, Krasnov does not teach a waveguide unit for guiding microwave into said supply path structure. Choo et al. (U.S. Patent No. 5,781,579) teach in Figure 1 a laser gas structure (51A) and waveguides (54) for guiding microwave into the gas structure. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a microwave source to pump the laser gas in Krasnov, as taught by Choo et al., to produce a high-power laser beam.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krasnov (U.S. Patent No. 6,198,762) in view of Hagiwara (U.S. Patent No. 5,381,210), Ando et al. (U.S. Patent No. 4,911,805) and Choo et al. (U.S. Patent No. 5,781,579). Regarding Claim 42, Krasnov teaches in Figure 1B a laser oscillating apparatus comprising a gas supply structure of a convergent-divergent nozzle type, wherein said gas supply structure comprises a fluid inlet (3a and 1a), a throat portion (1B) for controlling said compressible fluid to a speed greater than a sound speed and a fluid outlet (3B and 1c). Krasnov does not teach a plurality of path structures. Ando et al. teach in Figure 6D and in column 8 lines 48-60 that at least two path structures

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(plurality), of the convergent-divergent nozzle type with throat portions (2 and 2'). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a group of path structures connected in series in Krasnov, as taught by Ando et al., to further control and vary the flow velocity of the gas. Krasnov does not teach an exposure apparatus. Hagiwara teaches in Figure 2 an exposure apparatus comprising laser exposure/illuminating light (IL), a first optical system (5) for radiating the illuminating light onto a reticle (2), and a second optical system (3) for radiating the illuminating light onto a surface to be irradiated (4). It would have been obvious to one of ordinary skill in the art to use the laser as a light source for the exposure apparatus taught by Hagiwara, since any suitable laser source may be used. Furthermore, Krasnov does not teach a waveguide unit for guiding microwave into said supply path structure. Choo et al. (U.S. Patent No. 5,781,579) teach in Figure 1 a laser gas structure (51A) and waveguides (54) for guiding microwave into the gas structure. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a microwave source to pump the laser gas in Krasnov, as taught by Choo et al., to produce a high-power laser beam.

Claims 45 and 46, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagiwara (U.S. Patent No. 5,381,210) in view of Krasnov (U.S. Patent No. 6,198,762) and Choo et al. (U.S. Patent No. 5,781,579). Regarding Claim 45, Hagiwara teaches in column 1 lines 13-20 a method for producing a device comprising coating a wafer with a photosensitive layer to be irradiated and exposing said wafer to create a pattern and an exposure apparatus comprising laser exposure/illuminating light (IL), a first optical system (5) for radiating the illuminating light onto a reticle (2), and a second optical system (3) for radiating the illuminating light onto a surface to be irradiated (4). It is standard that the photosensitive

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layer will be developed after the irradiation. Hagiwara does not teach the gas supply path structure of the laser. Krasnov teaches in Figure 1B a laser oscillating apparatus comprising a gas supply structure of a convergent-divergent nozzle type, wherein said gas supply structure comprises a fluid inlet (3a and 1a), a throat portion (1B) for controlling said compressible fluid to a speed greater than a sound speed and a fluid outlet (3B and 1c). It would have been obvious to use the laser structure in Hagiwara, as taught by Krasnov, since any suitable laser source may be used. Furthermore, Hagiwara in view of Krasnov does not teach a waveguide unit for guiding microwave into said supply path structure. Choo et al. (U.S. Patent No. 5,781,579) teach in Figure 1 a laser gas structure (51A) and waveguides (54) for guiding microwave into the gas structure. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a microwave source to pump the laser gas in Hagiwara, as taught by Choo et al., to produce a high-power laser beam.

Regarding Claim 46, Hagiwara teaches in column 1 lines 13-20 that said a semiconductor element is formed on a wafer.

Claims 47 and 48, to the extent taught and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Hagiwara (U.S. Patent No. 5,381,210) in view of Krasnov (U.S. Patent No. 6,198,762), Ando et al. (U.S. Patent No. 4,911,805), and Choo et al. (U.S. Patent No. 5,781,579). Regarding Claim 47, Hagiwara teaches in column 1 lines 13-20 a method for producing a device comprising coating a wafer with a photosensitive layer to be irradiated and exposing said wafer to create a pattern and an exposure apparatus comprising laser exposure/illuminating light (IL), a first optical system (5) for radiating the illuminating light onto a reticle (2), and a second optical system (3) for radiating the illuminating light onto a surface to

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be irradiated (4). It is standard that the photosensitive layer will be developed after the irradiation. Hagiwara does not teach the gas supply path structure of the laser. Krasnov teaches in Figure 1B a laser oscillating apparatus comprising a gas supply structure of a convergent-divergent nozzle type, wherein said gas supply structure comprises a fluid inlet (3a and 1a), a throat portion (1B) for controlling said compressible fluid to a speed greater than a sound speed and a fluid outlet (3B and 1c). It would have been obvious to use the laser structure in Hagiwara, as taught by Krasnov, since any suitable laser source may be used. Hagiwara in view of Krasnov does not teach a plurality of path structures. Ando et al. teach in Figure 6D and in column 8 lines 48-60 that at least two path structures (plurality), of the convergent-divergent nozzle type with throat portions (2 and 2'). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a group of path structures connected in series in Krasnov, as taught by Ando et al., to further control and vary the flow velocity of the gas. Furthermore, Hagiwara in view of Krasnov does not teach a waveguide unit for guiding microwave into said supply path structure. Choo et al. (U.S. Patent No. 5,781,579) teach in Figure 1 a laser gas structure (51A) and waveguides (54) for guiding microwave into the gas structure. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a microwave source to pump the laser gas in Hagiwara, as taught by Choo et al., to produce a high-power laser beam.

Regarding Claim 48, Hagiwara teaches in column 1 lines 13-20 that said a semiconductor element is formed on a wafer.

Response to Arguments

Applicant's arguments with respect to claims 41, 42 and 45-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 703-306-5803. The examiner can normally be reached on Mon-Fri 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Danielle Merbleau

DNM

January 6, 2003

Paul IP

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